



# 2023 Spring Flood Outlook - NWS Hastings

February 9, 2023  
3:15 PM



National Oceanic and  
Atmospheric Administration  
U.S. Department of Commerce

National Weather Service  
Hastings, NE





# Spring Flood Outlook - Overview

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## Flood Risk This Spring Across South Central Nebraska and North Central Kansas is Generally **Below Normal**

- Local winter snowpack has been rather variable, but even in areas with the most snow the liquid contained in the snowpack is negligible.
- Mountain snowpack in the Platte River Basin is near to above normal, but with lower than normal reservoir levels, spring flooding in the plains due to mountain snow melt is currently not expected.
- River ice thickness and frost depth is close to a bit above seasonal norms and we expect a near normal to above normal threat for ice jams. The most likely time period for possible ice jams will be February.
- Soil moisture is much drier than normal and the soil is capable of absorbing plenty of moisture thus limiting spring flood potential.
- Current streamflow on our biggest rivers is averaging near normal to below normal.
- The long range precipitation outlook indicates a higher likelihood of below normal precipitation.
- Isolated flooding is still possible even in dry years and when the overall risk of flooding is low.





# Spring Flood Outlook

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South Central Nebraska and North Central Kansas

Overall Spring Flood Risk

**\*\* Below Normal \*\***

Contributing Factors	Short Term: February	Long Term: February-April
Local Snowpack	Normal	Below Normal
Mountain Snowpack	Normal to Above Normal	Normal To Above Normal
River Ice/Frozen Ground	Normal to Above Normal	Normal to Above Normal
Soil Moisture	Below Normal	Below Normal
Stream Flow	Below Normal	Below Normal
Precipitation Outlook	Normal	Below Normal

## Bottom Line Up Front

- **Below Normal:** Biggest Contributing factors are the drought/dry soil and long range below normal precipitation outlook.
- **Snowpack:** As of Feb 9th most of our local snowpack has melted. The long range precipitation outlook is for below normal snow/rain. Mountain snowpack that feeds the Platte River is near to above normal, but reservoirs have plenty of storage space.
- **River Ice/Frozen Ground:** Recent cold spell has increased ice thickness to fairly normal levels. Note: Watch for possible ice jams as ice breaks up (near normal to above normal threat for ice jams).
- **Soil Moisture:** Abnormally dry given ongoing moderate to extreme drought conditions.
- **Stream Flow:** Our biggest rivers are generally running with below to near normal flow.
- **Precipitation Outlook:** The Climate Prediction Center is forecasting below normal precipitation for most of the period.

Impact Level

Below Normal

Normal

Above Normal



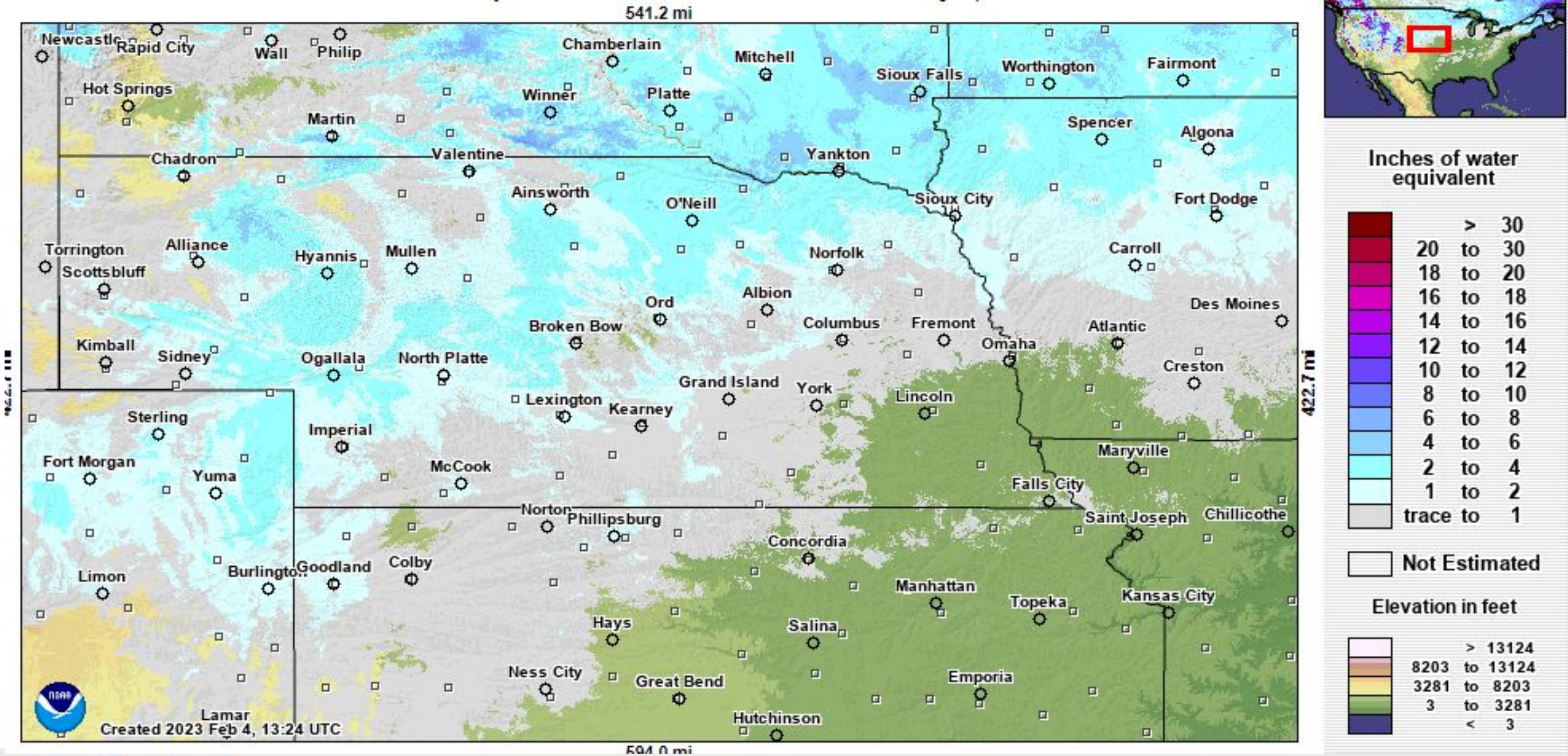




# Regional Snow Water Equivalent

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Modeled Snow Water Equivalent forecasted for 2023 February 4, 19:00 UTC







# Seasonal Snowfall So Far

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Above Normal Northwestern Areas - Below Normal Eastern Areas

As of Feb 9, 2023

## Grand Island

### Seasonal Snow:

Current 14.5"  
Normal 17.3"  
Short -2.8"

## Grand Island

### Seasonal Liquid:

Since Dec 1, 2022  
Liquid +0.29"

Since Jan 1, 2022 (start of *LAST* year)

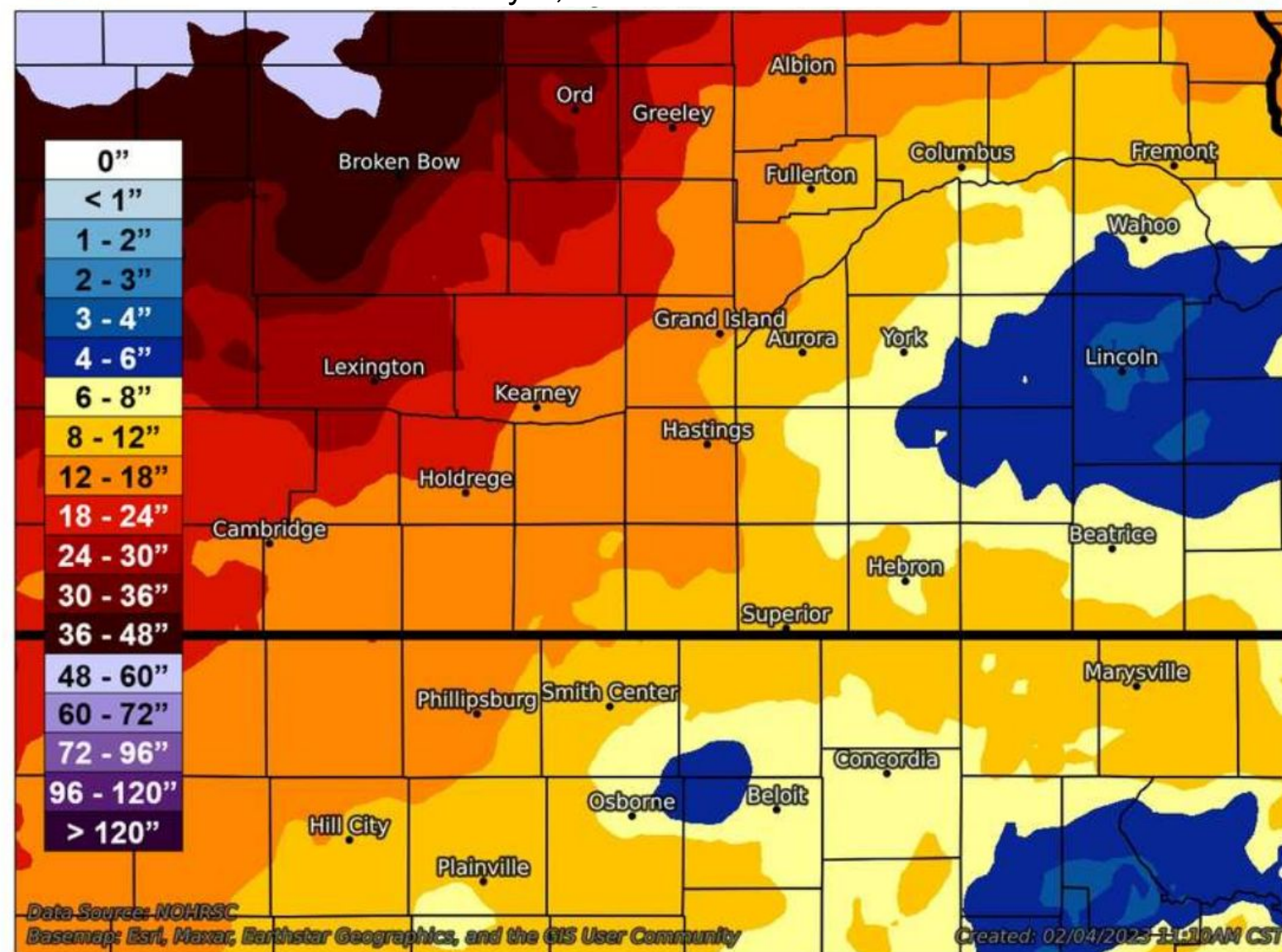
Liquid -11.12"

Winter precipitation so far has been close to normal, but we are not really cutting into that huge 2022 precipitation deficit.



## Season Total Snow

As of February 8, 2023 - 6AM CST



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# Precipitation Trends Last 90 Days

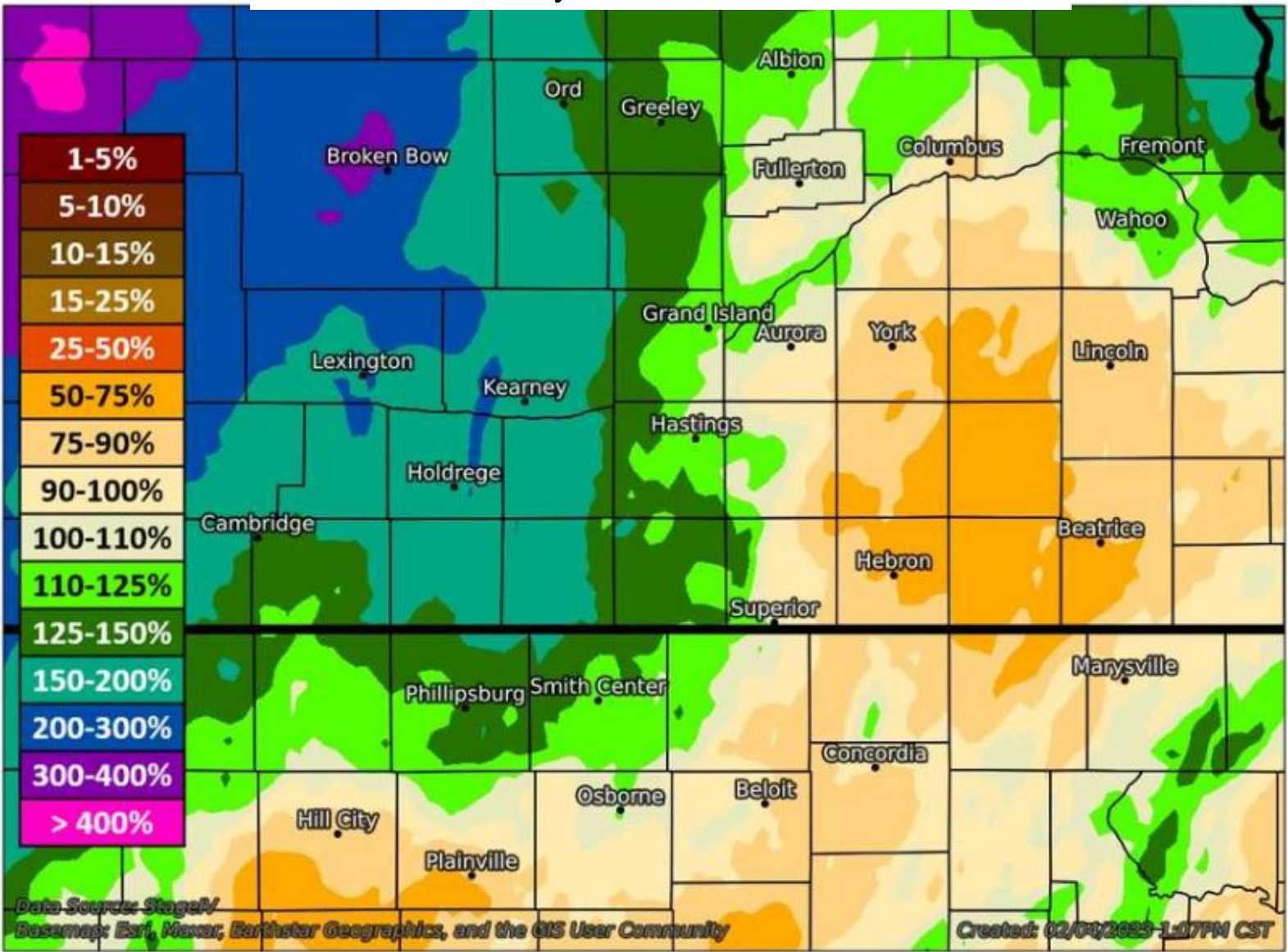
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Below Normal East to Above Normal West



## 90-Day Precip Percent

As of February 8, 2023 - 6AM CST



### Key Messages

- Precipitation Last 90 days
- Below normal east
- Above normal west







# Platte River Basin Snowpack

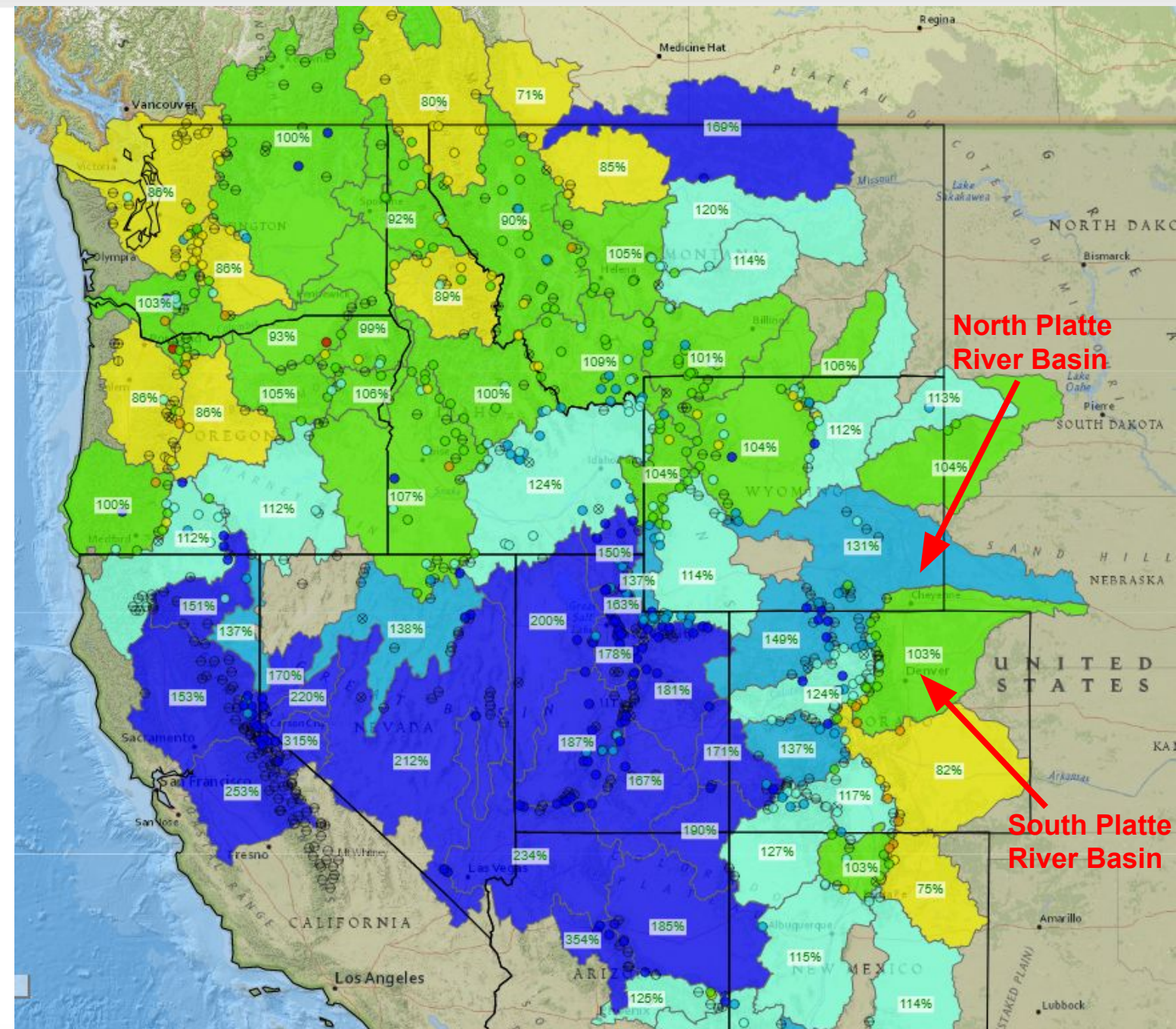
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Near Normal South Platte River Basin - Above Normal North Platte River Basin

## Key Messages

- As of early February the mountain snowpack was near normal over the South Platte River Basin and above normal over the North Platte River Basin.
- Mountain snowmelt-induced flooding is not expected across Central Nebraska







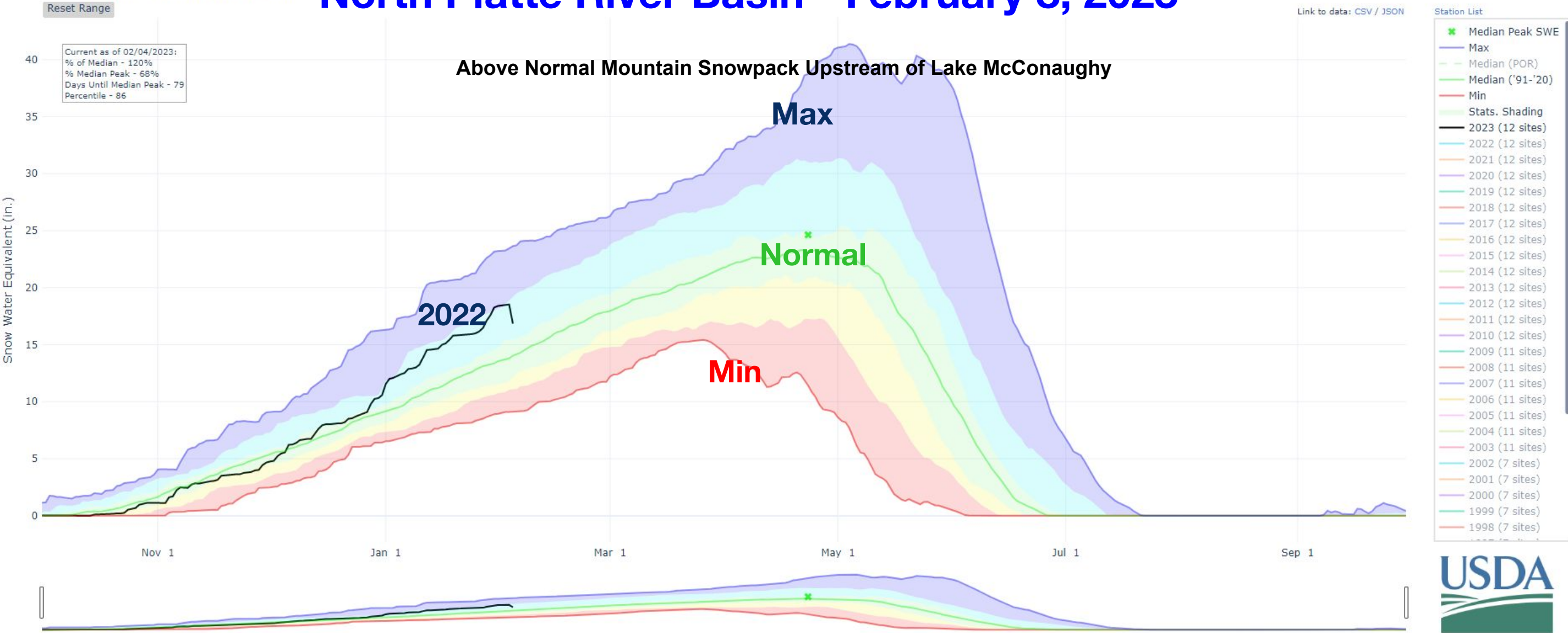
# Platte River Basin Snowpack

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Above Normal Snowpack

SNOW WATER EQUIVALENT IN  
LARAMIE AND NORTH PLATTE

## North Platte River Basin - February 8, 2023



Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles  
For more information visit: [30-Year Hydroclimatic Normals](#)



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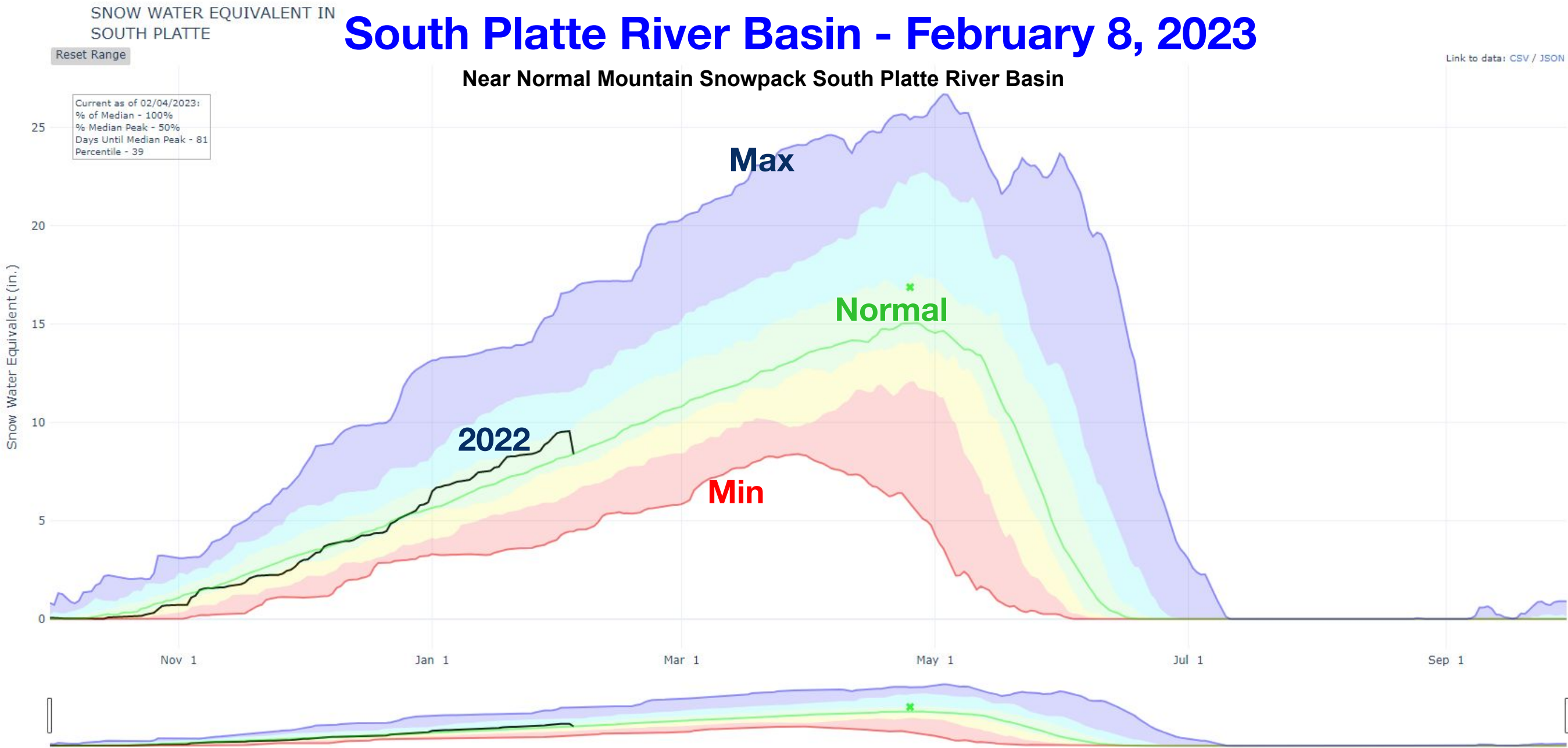
# Platte River Basin Snowpack

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Near Normal Snowpack

## South Platte River Basin - February 8, 2023

Near Normal Mountain Snowpack South Platte River Basin







# Western Reservoir Storage

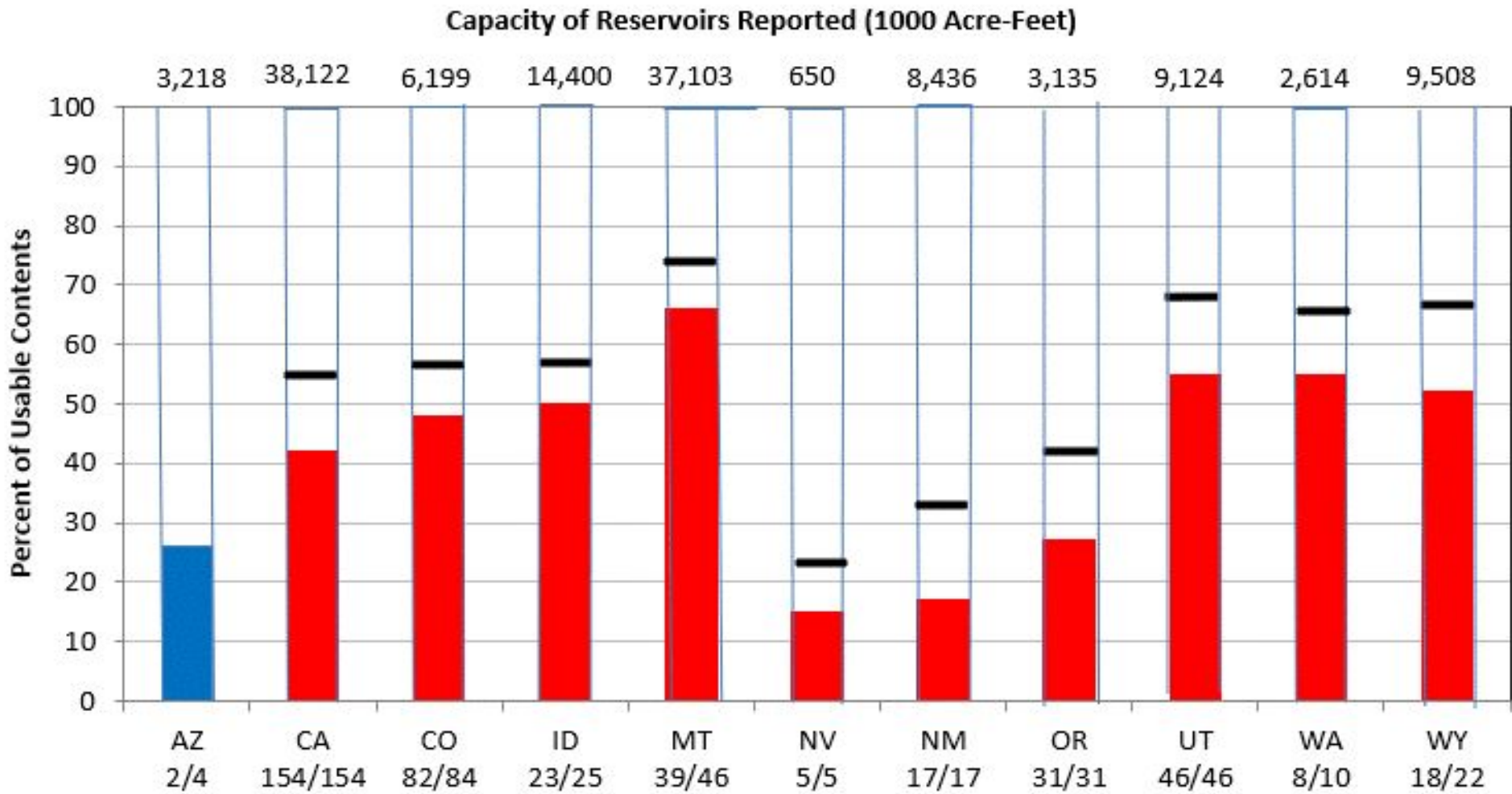
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Below Normal Reservoir Levels

## Reservoir Storage as of January 1, 2023

Below Median    At or Above Median    Median

\*\* Below Normal Reservoir Levels \*\*



Prepared by: USDA Natural Resources Conservation Service  
National Water and Climate Center, Portland, OR  
[www.nrcs.usda.gov/wps/portal/wcc/home/](http://www.nrcs.usda.gov/wps/portal/wcc/home/)

State and Number of Reservoirs Reported



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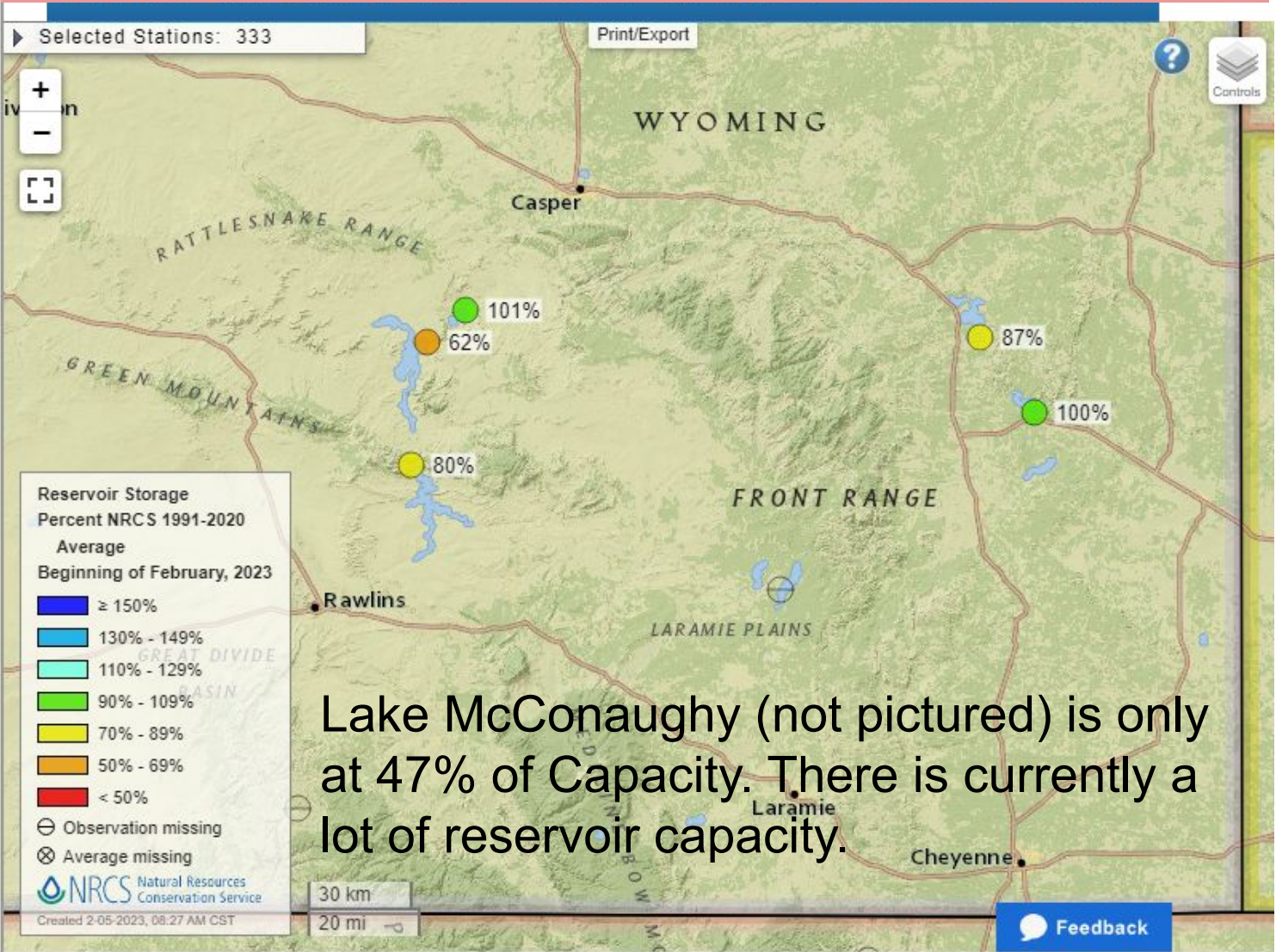


# Western Reservoir Storage

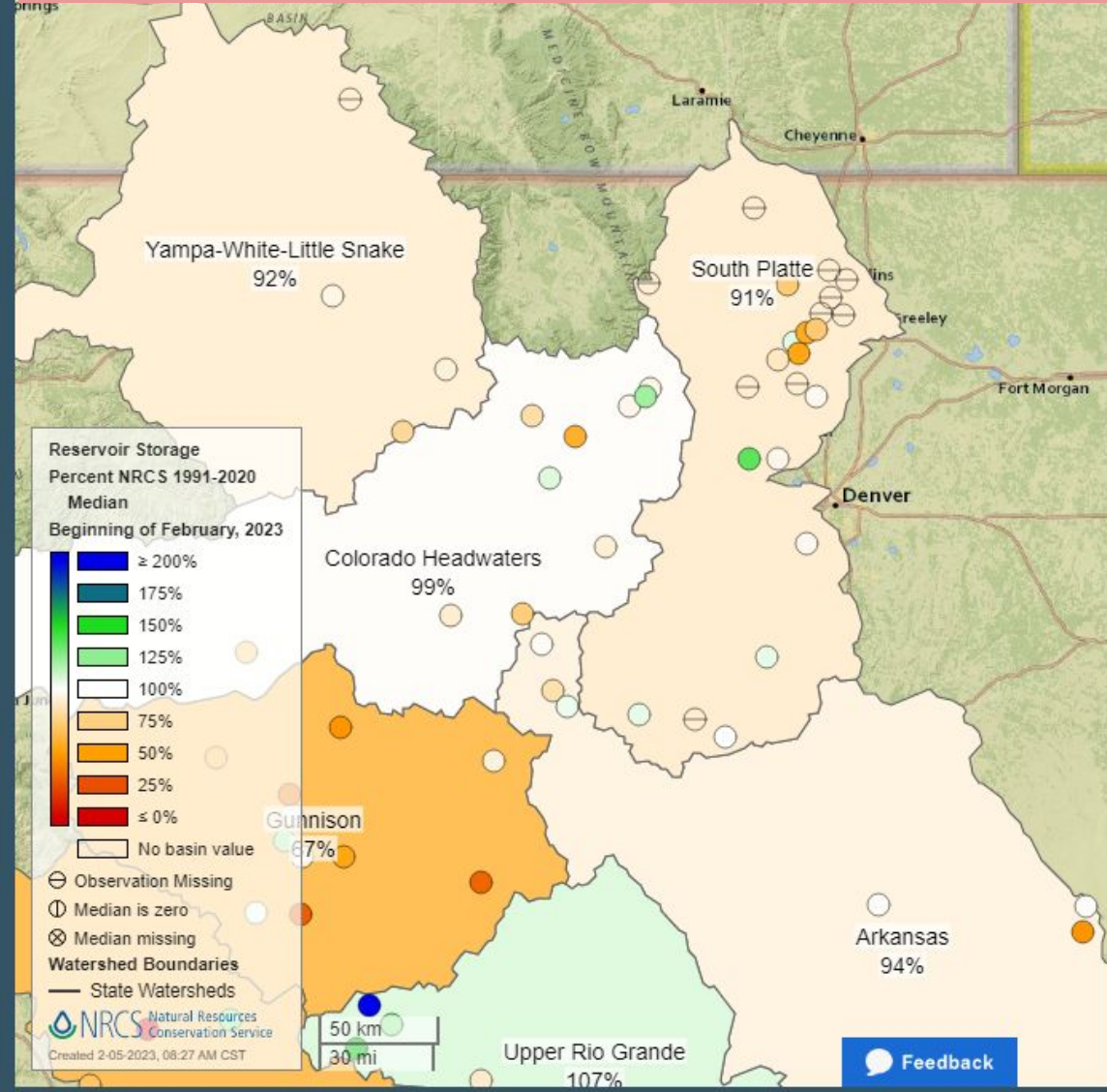
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## Below Normal Reservoir Levels

North Platte Basin: Below Average Reservoir Levels  
Biggest Reservoirs 62-87% (Feb 1st 2023)



South Platte Basin: Below Average Reservoir Levels  
Reservoir Levels (Feb 1st 2023)







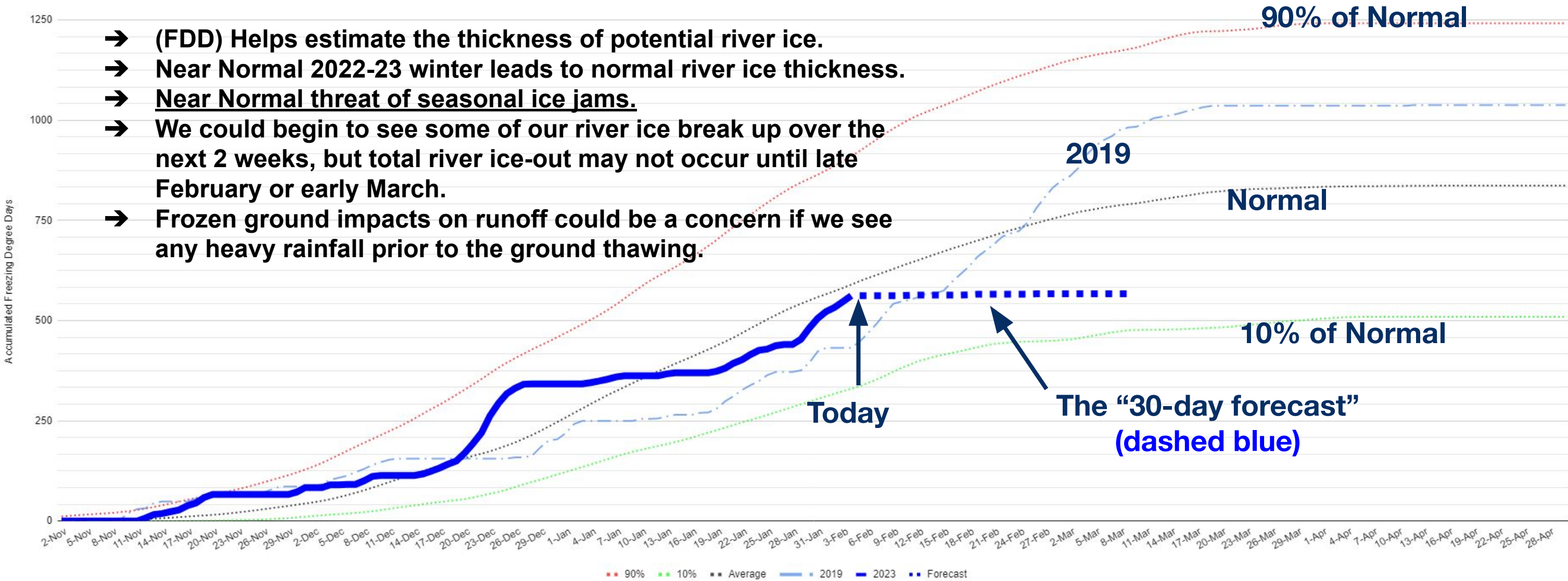
# Freezing Degree Days (FDD)

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Grand Island - Near Normal FDD Indicates Winter With Close To Normal Temperatures

Accumulated Freezing Degree Days for Grand Island, NE

- (FDD) Helps estimate the thickness of potential river ice.
- Near Normal 2022-23 winter leads to normal river ice thickness.
- Near Normal threat of seasonal ice jams.
- We could begin to see some of our river ice break up over the next 2 weeks, but total river ice-out may not occur until late February or early March.
- Frozen ground impacts on runoff could be a concern if we see any heavy rainfall prior to the ground thawing.







# Soil Moisture

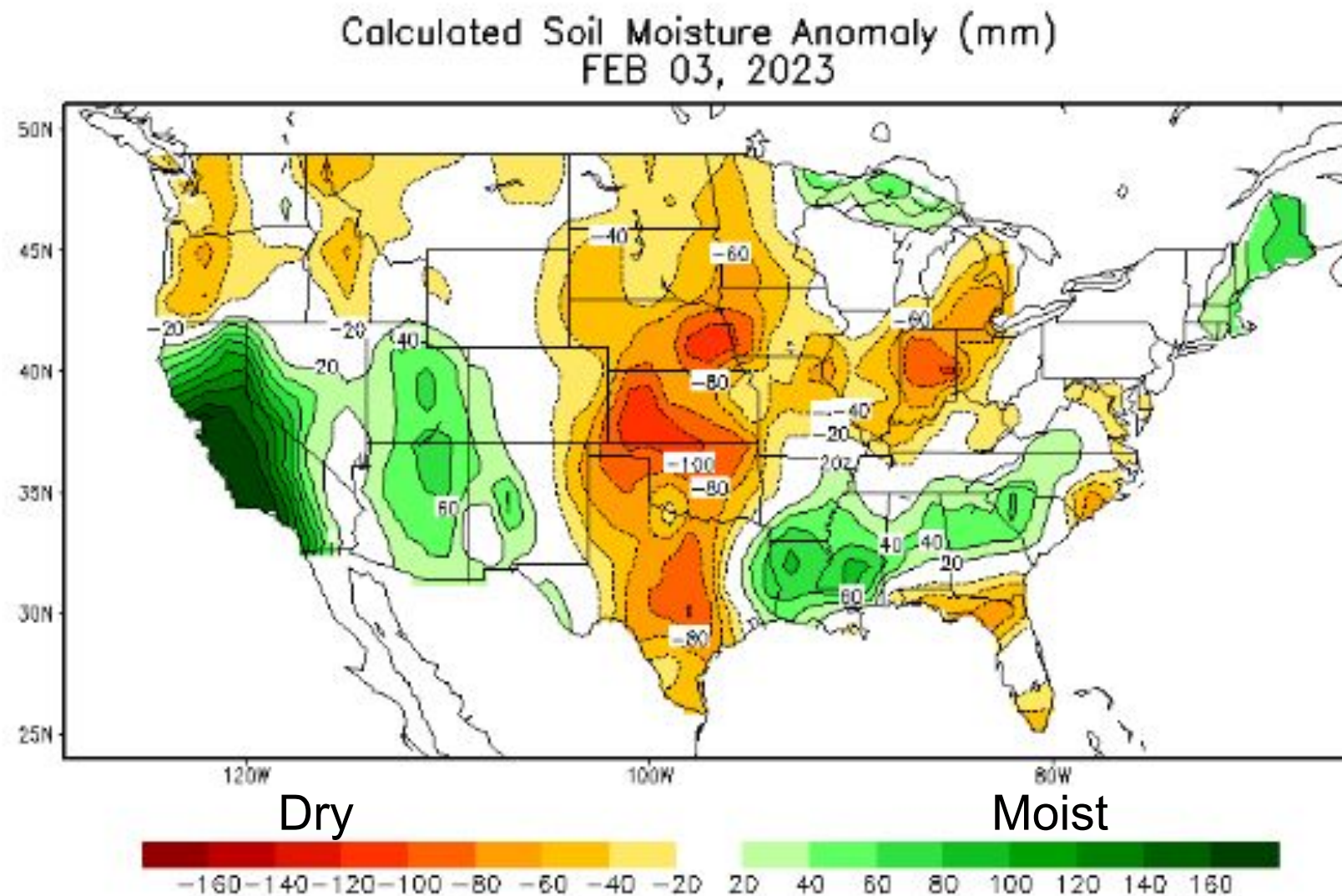
Below Normal

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## Key Messages

- Below normal soil moisture
- Ground should easily be able to absorb a good deal of moisture once it thaws







# Drought Monitor

Moderate to Extreme Drought

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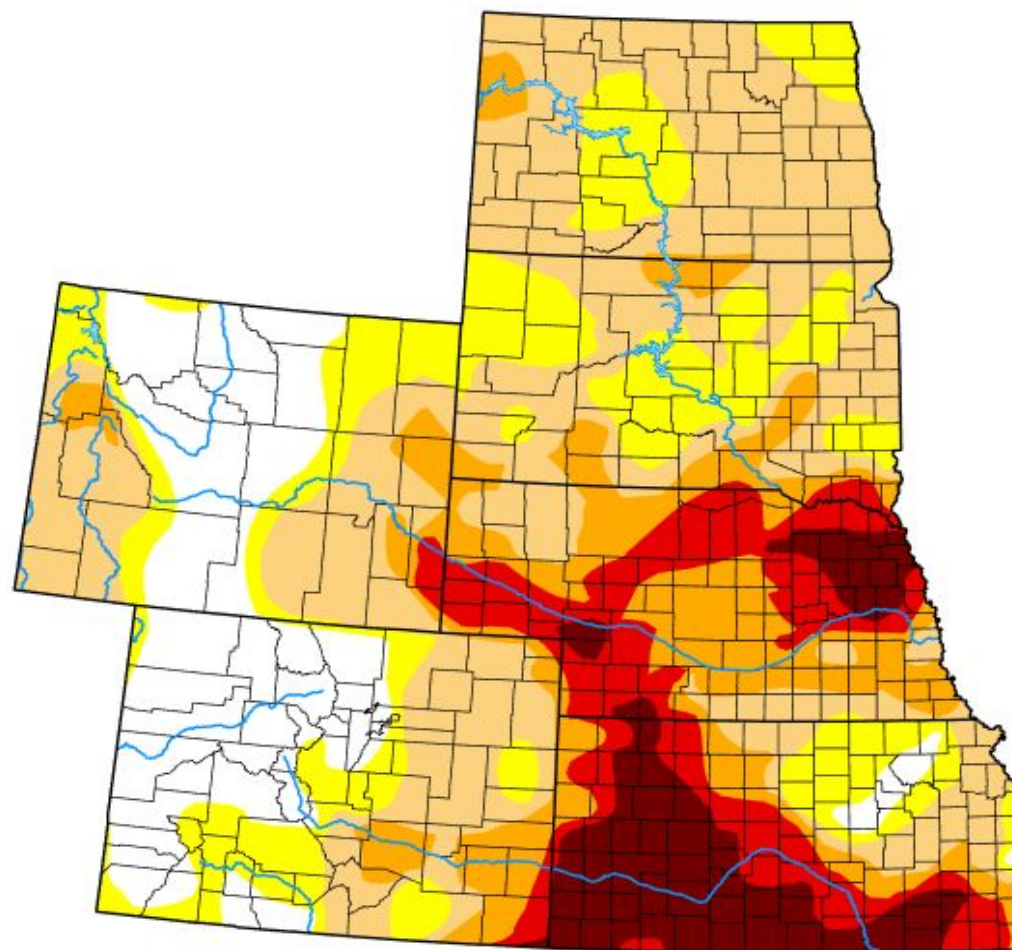
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## High Plains

[Home](#) > High Plains

### Key Messages

- Moderate to extreme drought conditions persist
- Ground should easily be able to absorb a good deal of spring moisture



Map released: Thurs. February 9, 2023

Data valid: February 7, 2023 at 7 a.m. EST

### Intensity

None	None
D0 (Abnormally Dry)	D0 (Abnormally Dry)
D1 (Moderate Drought)	D1 (Moderate Drought)
D2 (Severe Drought)	D2 (Severe Drought)
D3 (Extreme Drought)	D3 (Extreme Drought)
D4 (Exceptional Drought)	D4 (Exceptional Drought)
No Data	No Data

### Authors

United States and Puerto Rico Author(s):  
**Brian Fuchs**, National Drought Mitigation Center

Pacific Islands and Virgin Islands Author(s):  
**Tsegaye Tadesse**, National Drought Mitigation Center

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying **text summary** for forecast statements.*



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# 6-10 Day Outlook

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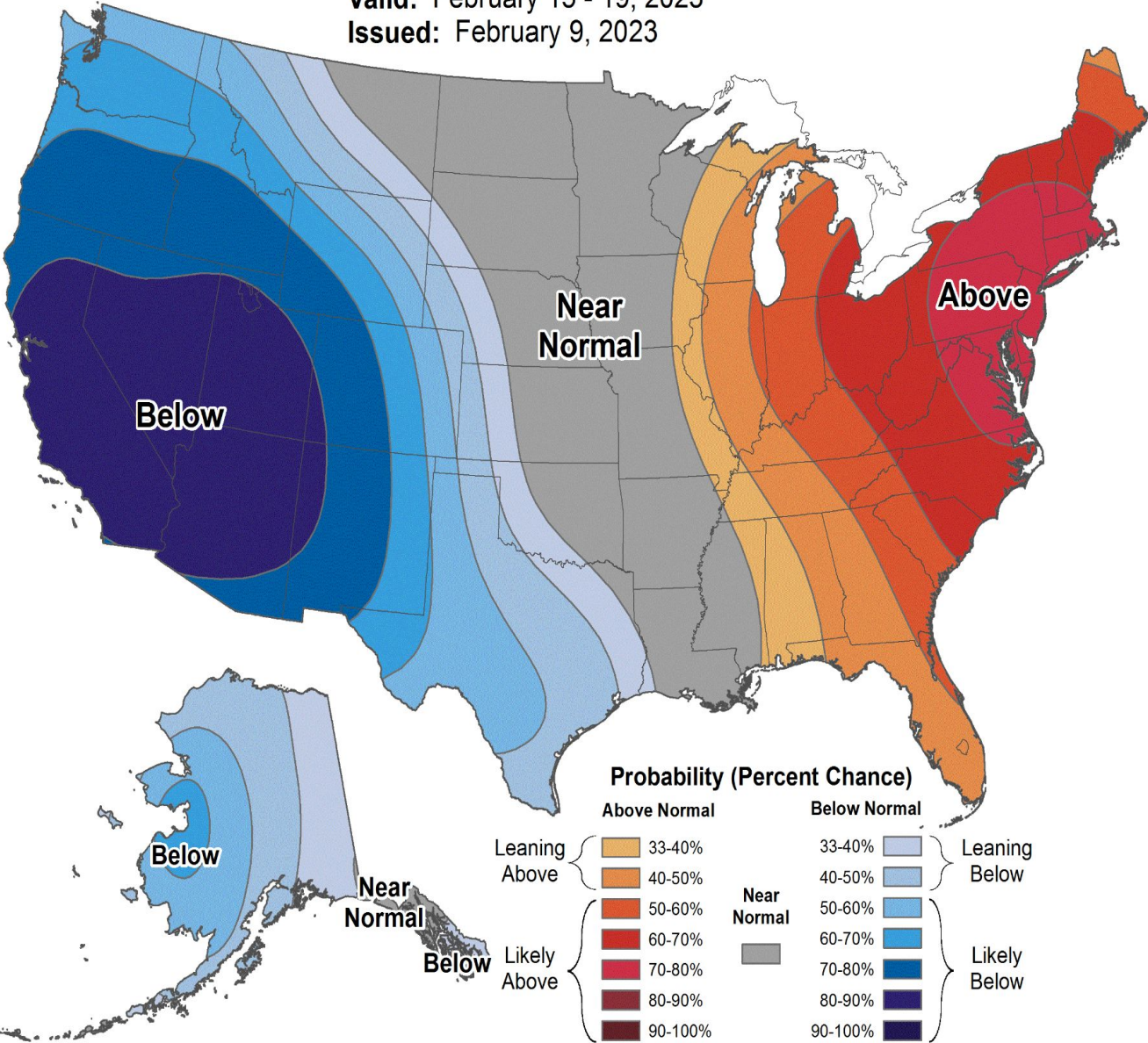
## Temperature and Precipitation



### 6-10 Day Temperature Outlook



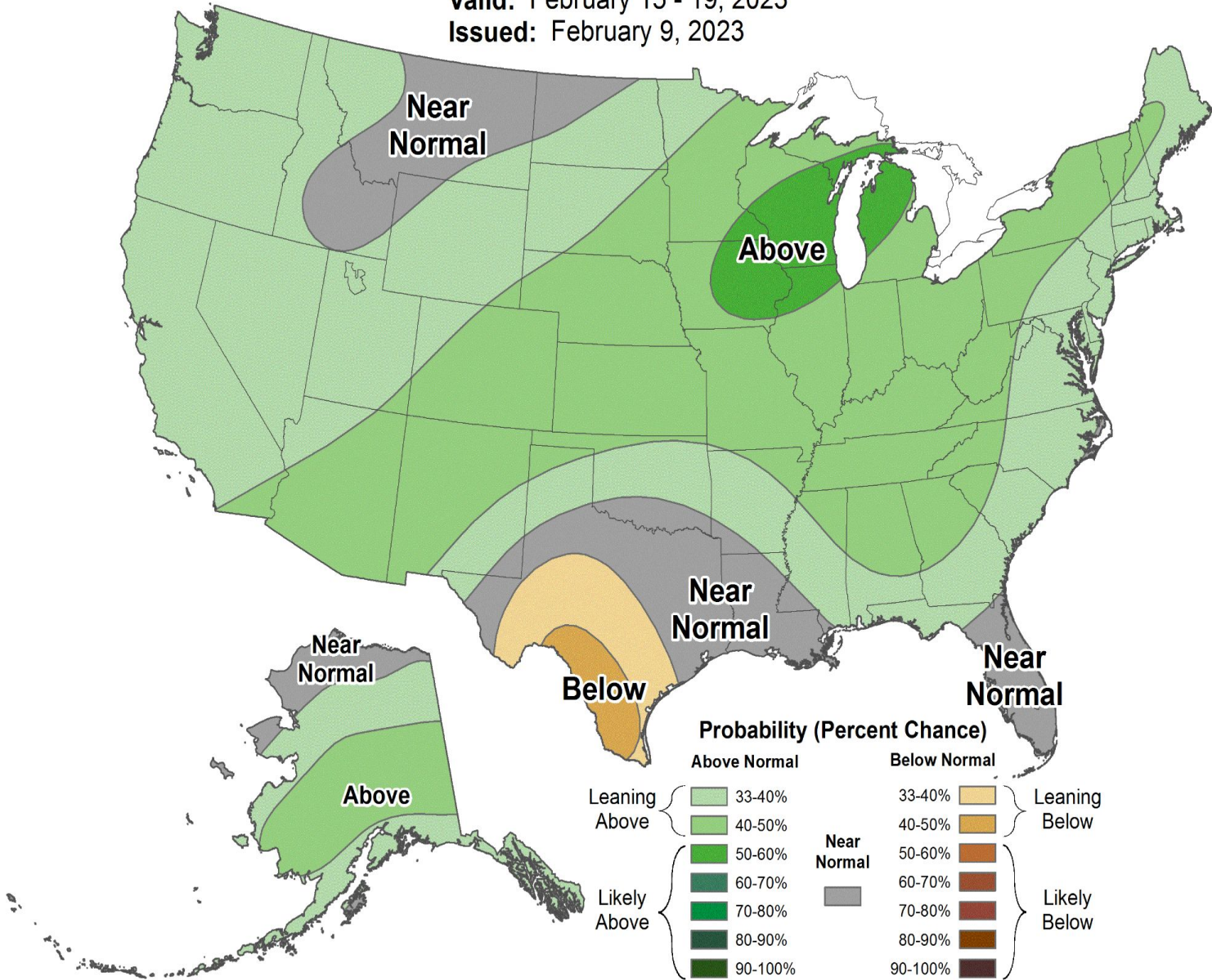
Valid: February 15 - 19, 2023  
Issued: February 9, 2023



### 6-10 Day Precipitation Outlook



Valid: February 15 - 19, 2023  
Issued: February 9, 2023







# 8-14 Day Outlook

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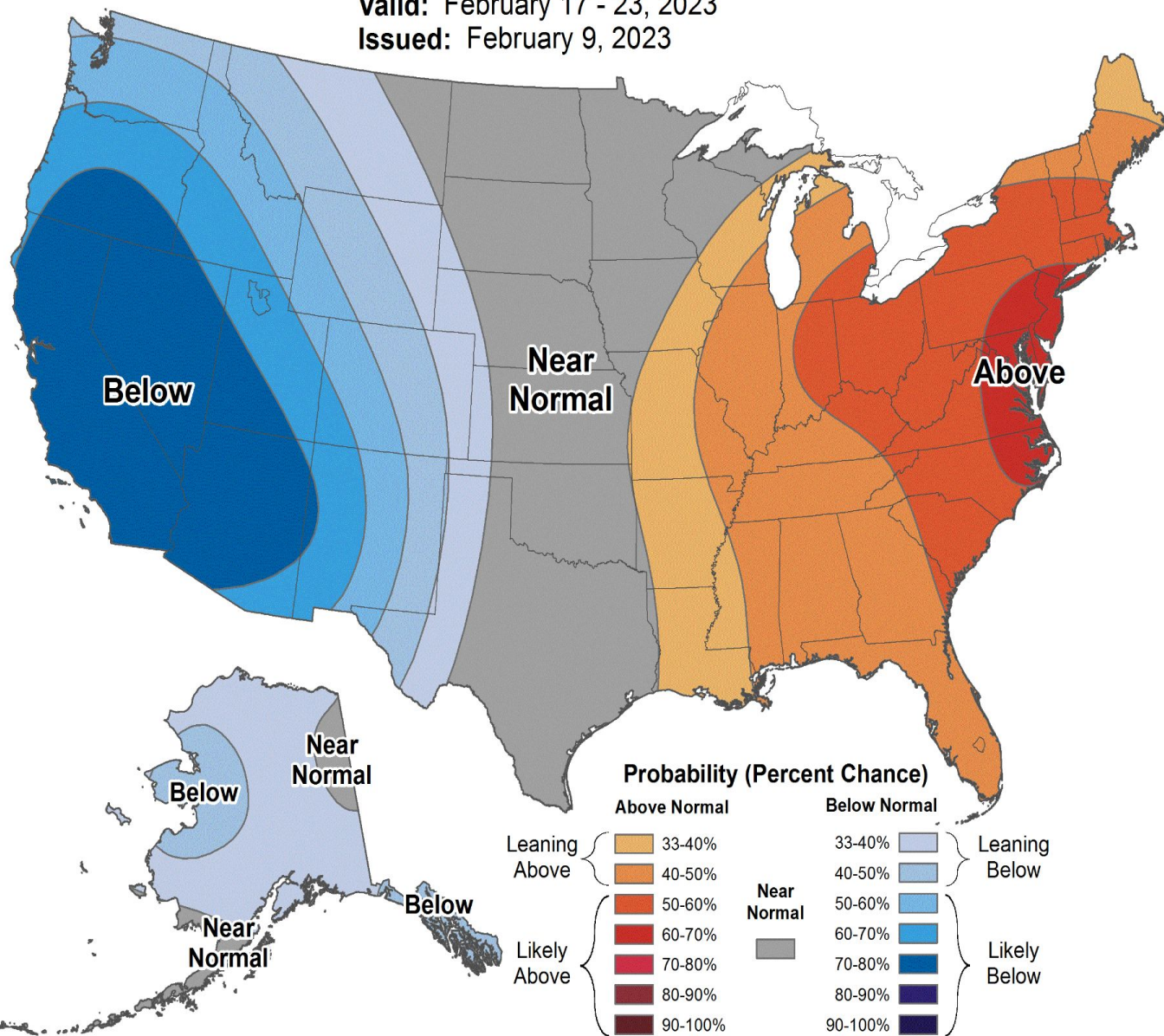
## Temperature and Precipitation



### 8-14 Day Temperature Outlook



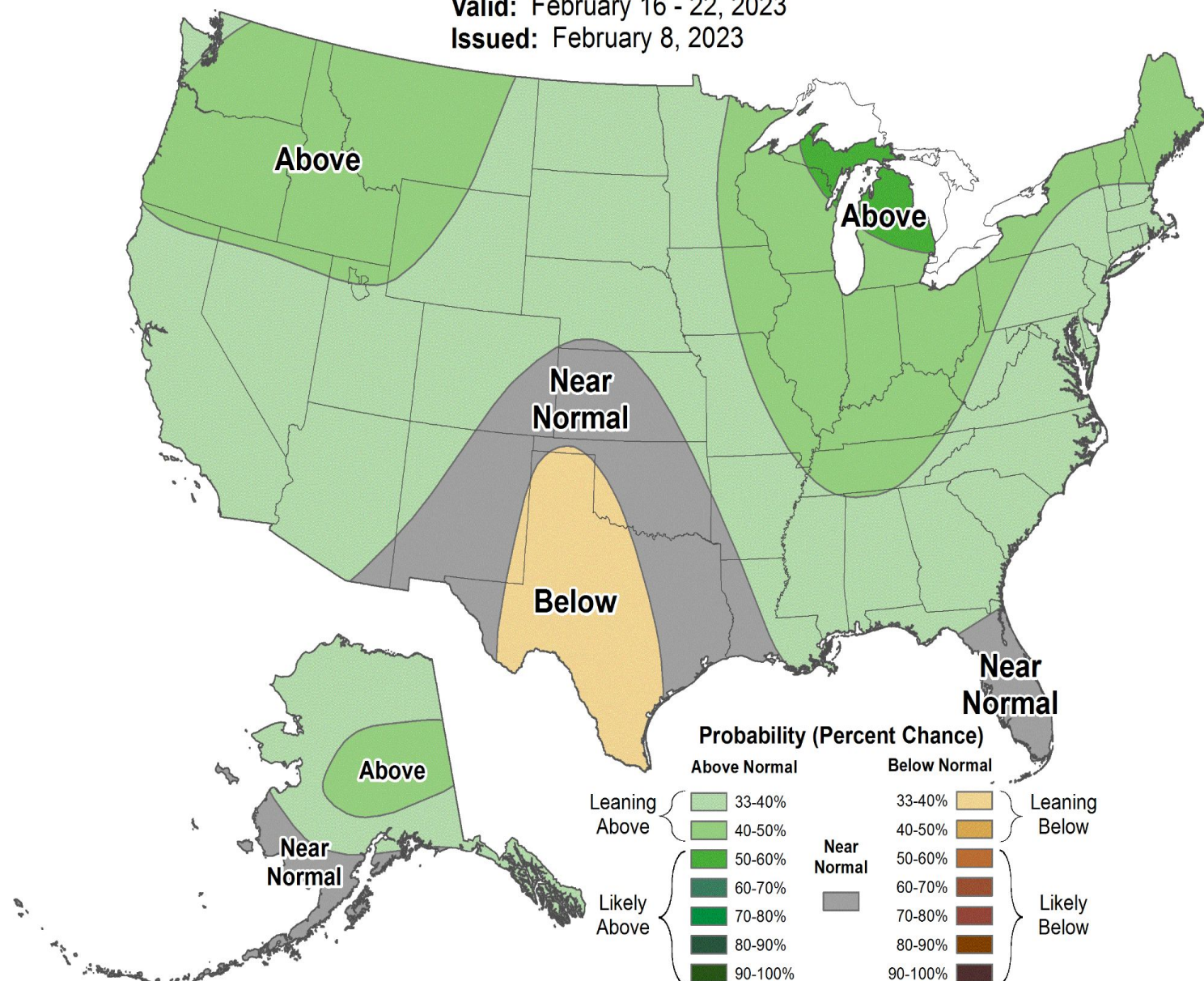
Valid: February 17 - 23, 2023  
Issued: February 9, 2023



### 8-14 Day Precipitation Outlook



Valid: February 16 - 22, 2023  
Issued: February 8, 2023







# Week 3-4 Outlook

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## Temperature and Precipitation

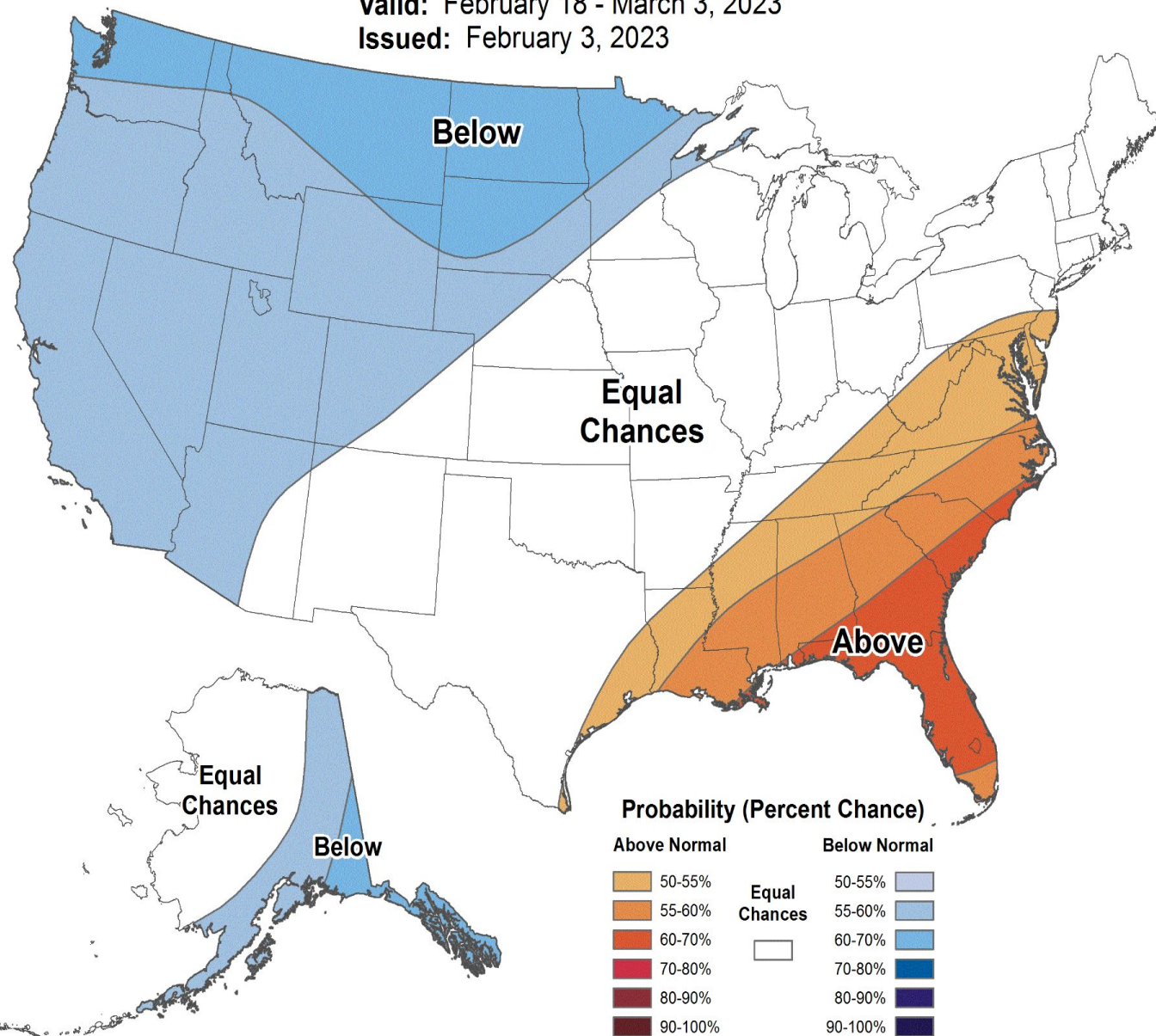


### Weeks 3-4 Temperature Outlook



Valid: February 18 - March 3, 2023

Issued: February 3, 2023

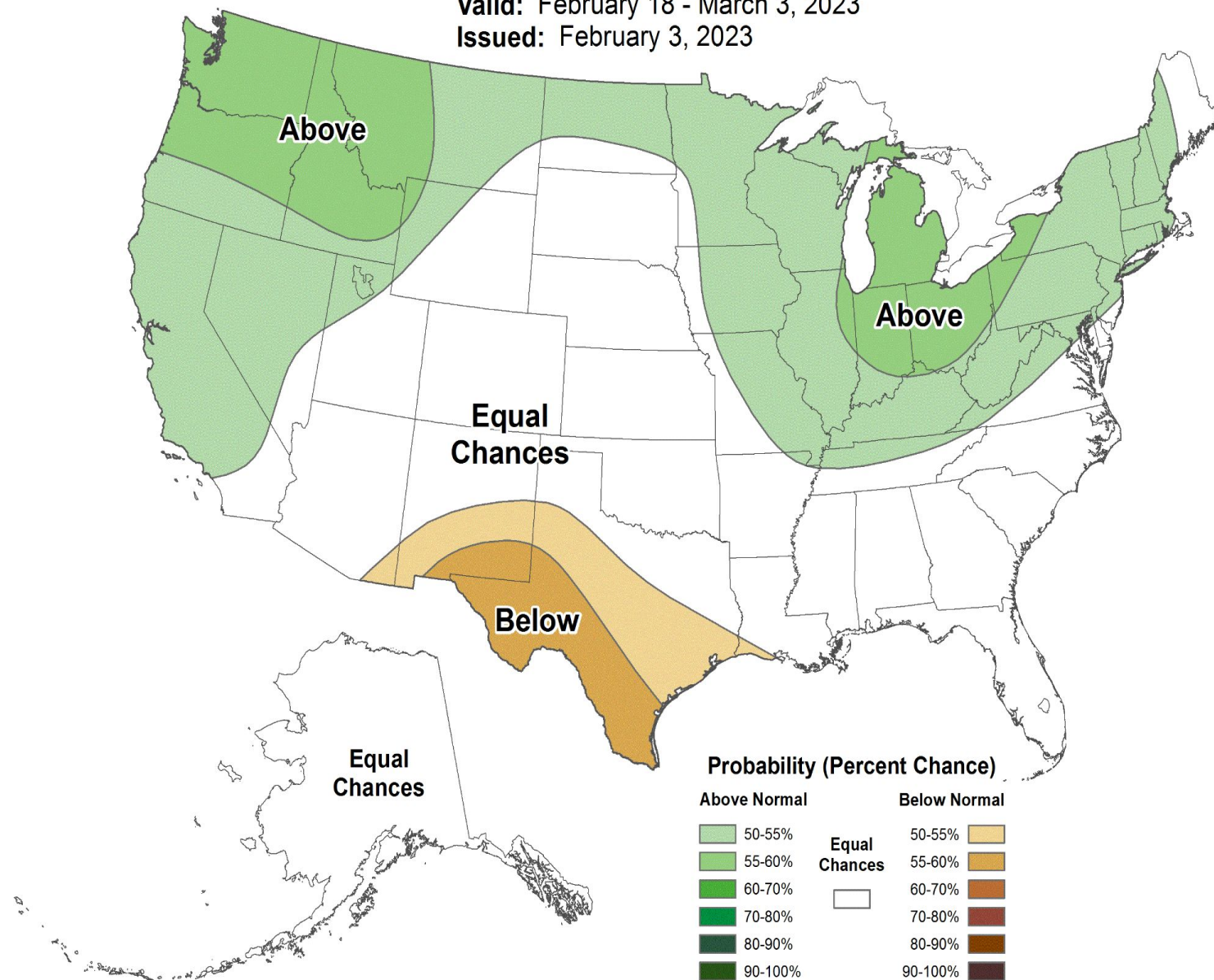


### Weeks 3-4 Precipitation Outlook



Valid: February 18 - March 3, 2023

Issued: February 3, 2023







# Seasonal Outlook

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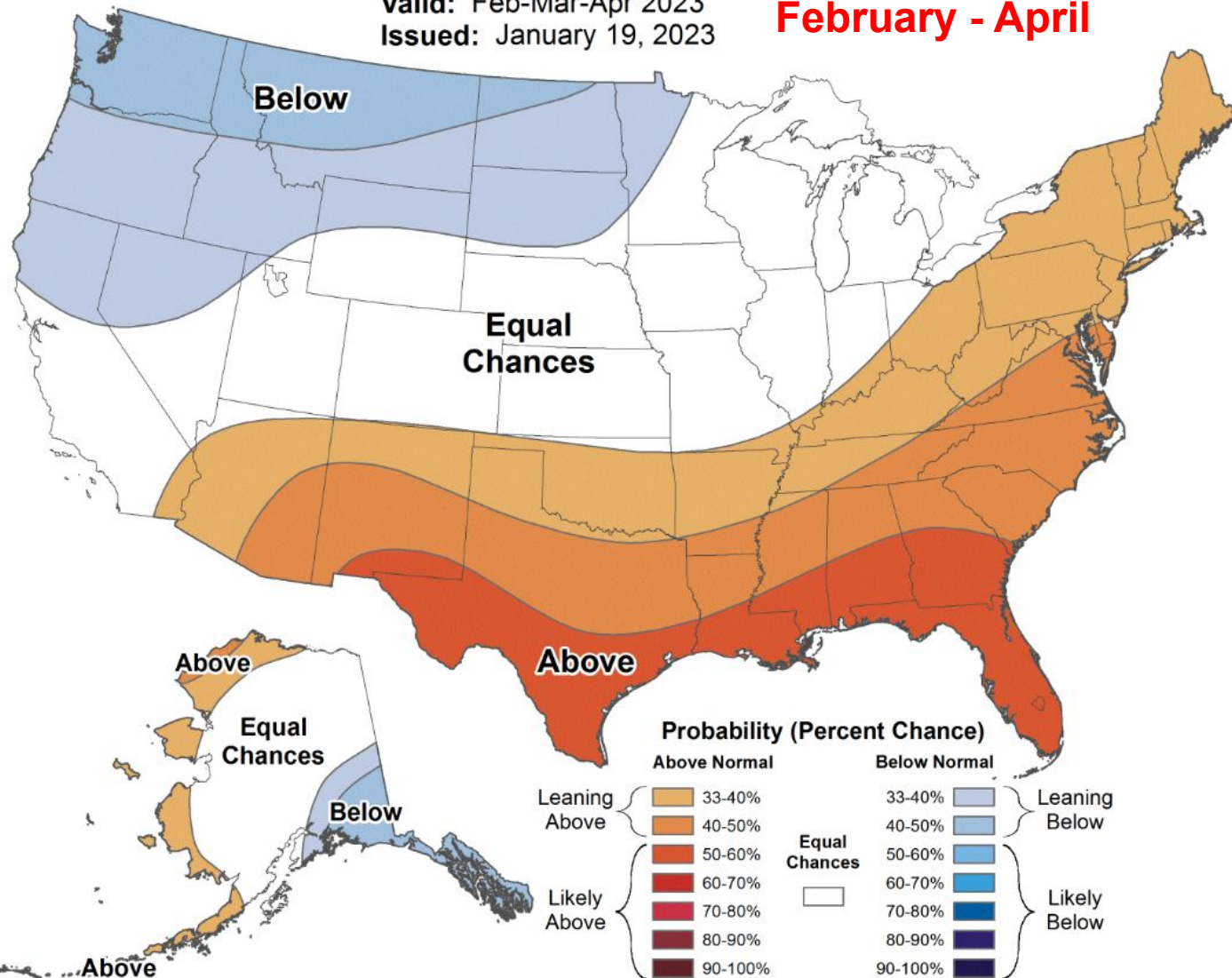
More Likely A Drier Than Normal Early Spring With Less Clear Signals Regarding Temperature



## Seasonal Temperature Outlook

Valid: Feb-Mar-Apr 2023  
Issued: January 19, 2023

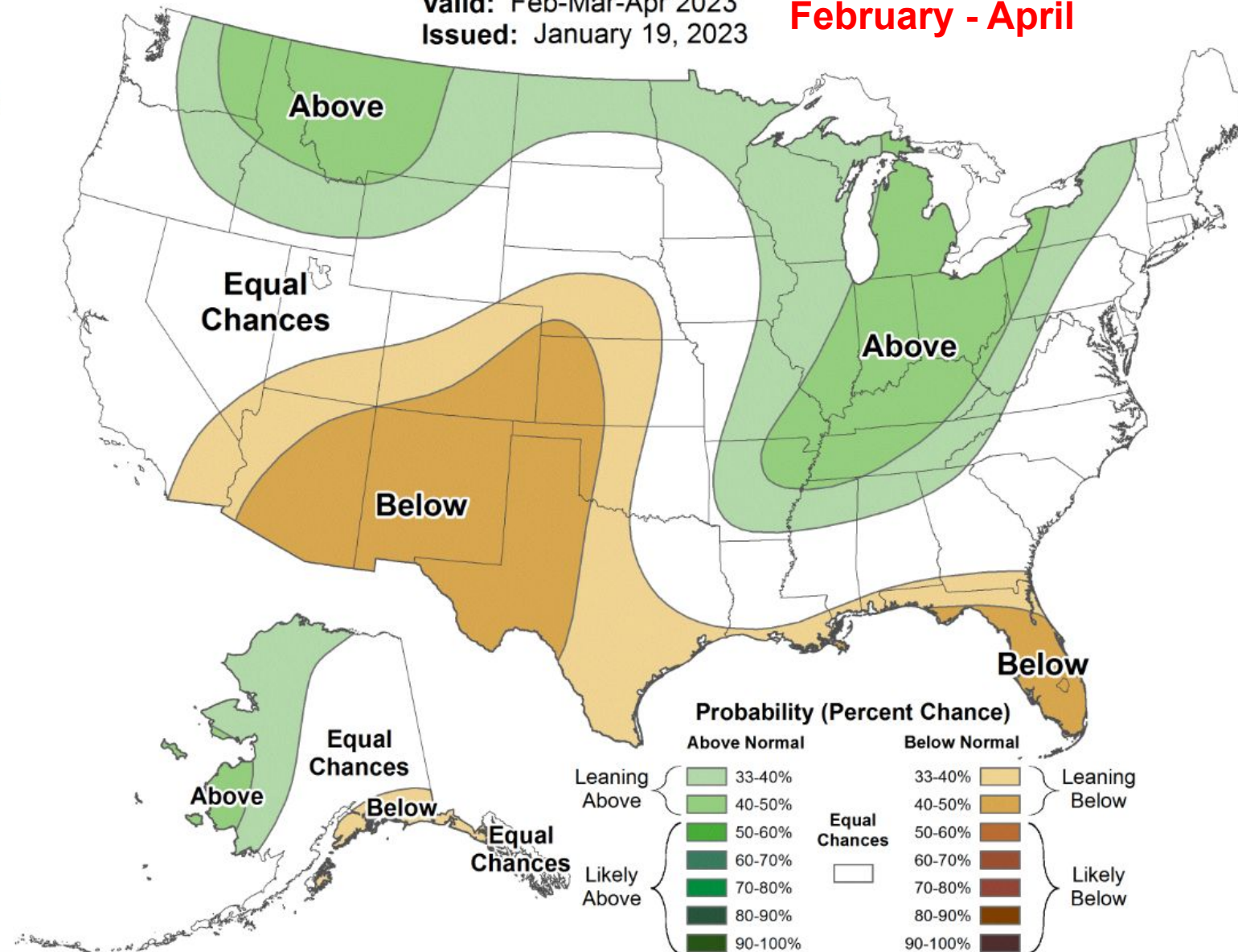
February - April



## Seasonal Precipitation Outlook

Valid: Feb-Mar-Apr 2023  
Issued: January 19, 2023

February - April







# Spring Flood Outlook - Summary

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